♦TDK

U.DMA6-compatible Parallel ATA (PATA) Solid-State Drive (SSD) for Industrial Use SDG8B Series

Conformity to RoHS Directive

Equipped with SLC flash memory and highly reliable 2.5-inch IDE solid-state drive with TDK GBDriver RA8

1GB, 4GB, 8GB, and 16GB

TDK industrial SSD(Solid State Drive): the SDG8B Series are high-speed and highly reliable flash memory disk equipped with TDK's own NAND-type flash memory controller IC, GBDriver RA8. The series features high-speed data access with effective reading and writing speeds of 45 MB/sec and 28 MB/sec, respectively, and has a powerful error-correcting ability that can be extended up to 15 bit/sector ECC, thereby achieving high data reliability. In addition, the SDG8B Series has TDK's proprietary algorithm that minimizes bit error (read disturb error) resulting from repetition of data reading, as well as the risk of data corruption (collateral data error) due to power-off during data writing; both features help provide perfect reliability.

Furthermore, the newly developed static wear leveling algorithm levels the erasing times of the flash memory in all areas of the memory; this function has considerably improved the rewriting life of the flash memory. The product also enables erasing times of all memory blocks to be obtained as SMART (Self-Monitoring & Analysis Reporting Technology) information, thus allowing flash life-span to be evaluated and detected quantitatively. With technical support by dedicated FAE, these SSD are ideal for industrial use and embedment.

FEATURES

- Equipped with TDK's proprietarily developed NAND controller IC GBDriver RA8
- Equipped with high-speed, highly durable SLC (Single Level Cell) NAND flash memory[1]
- Compatible with PIO mode0-6/Multiword DMA mode0-4/Ultra DMA mode0-6 High-speed data access with reading and writing speeds of 45 MB/sec and 28 MB/sec, respectively[2]
- Error-correcting ability: 8 or 15 bits/sec ECC (automatically selected by the flash memory's judgment)
- TDK's proprietary static wear leveling algorithm levels the erasing times of all the areas (blocks) of the equipped flash memory and considerably improves the rewriting life-span of the memory.[3]
  (As reference, the SDG8B SSD with a 16GB capacity can be rewritten (erased) 6.2 billion times. This is equivalent to 20-times rewriting (erasing) per second over a ten year life.)[4]
- Perfectly prevents collateral errors; due to TDK's proprietary flash memory control system SSD is designed to have higher durability for system power-off.
- Supports SMART commands; histogram display of erasing times of all memory blocks enables memory life-span to be managed quantitatively.
- Equipped with a function to set the number of all sectors which allows customization of the number of logical blocks per sector allotted to the data area.
  For example, decreasing the number of logical blocks can increase the possible erasing times of the flash memory, and for those applications that do not need a longer life, increasing the number of logical blocks can increase the memory capacity to the maximum. CHS parameters can also be customized.

- Supports security functions based on ATA standards. Customers can set or cancel passwords to prevent falsification of leaking of personal and confidential information.
- Dedicated FAE (Field Application Engineer) system provides speedy and reliable solutions e.g. system compatibility verification and customizing.
- Complies with RoHS Directives as a solid-state drive. The components, lead terminals, etc. are all free from hazardous substances prohibited by the RoHS Directives of the EU (European Union). Therefore, the product can be safely used overseas.

[1] A product equipped with MLC (Multi Level Cell) NAND can be provided on request.
[2] Dependent on flash memory connection configuration and system environment.
[3] The scope of static wear leveling execution can be customized. (Outside the scope of static wear leveling execution, dynamic wear leveling is executed).
[4] This applies to a product equipped with an SLC flash memory with a structure of 4KB/page.

- Conformity to RoHS Directive: This means that, in conformity with EU Directive 2002/95/EC, lead, cadmium, mercury, hexavalent chromium, and specific bromine-based flame retardants, PBB and PBDE, have not been used, except for exempted applications.

- All specifications are subject to change without notice.

MAIN APPLICATIONS

- Storing an OS, system, and user data
- POS systems, Station equipment, security systems, etc. requiring high frequency of rewriting data
- Medical equipment, logistics, machine tools, etc. requiring vibration resistance, high-speed booting, energy-saving, and downsizing
- Terminals for financial institutions, digital signage, security authentication systems, etc. requiring high data reliability and security

APPLICATION EXAMPLES

- General FA equipment: NC machine tools, sequencers, PLCs, panel computers, touch panel systems, embedded CPU boards, etc.
- Entertainment equipment for online karaoke, amusement arcades, etc.
- General social infrastructure equipment: communication and broadcasting equipment
- General crime and disaster prevention equipment: monitoring cameras
- Station equipment: automatic ticket vending and checking, and commuter pass-vending machines
- General vehicle-installed equipment: car navigation system, digital tachograph, data logger, drive recorder, and rear-view monitor
- General OA equipment: multifunctional printers (MFP) and business-oriented projectors, etc.
- POSs, terminals for convenience stores and kiosks, and terminals for financial institutions, ATMs, etc.
- General medical and measuring equipment: diagnostic imaging equipment, blood analysis equipment, medical PCs, and electronic medical chart systems

SHAPES AND DIMENSIONS

2.5-inch PATA SSD

Dimensions in mm
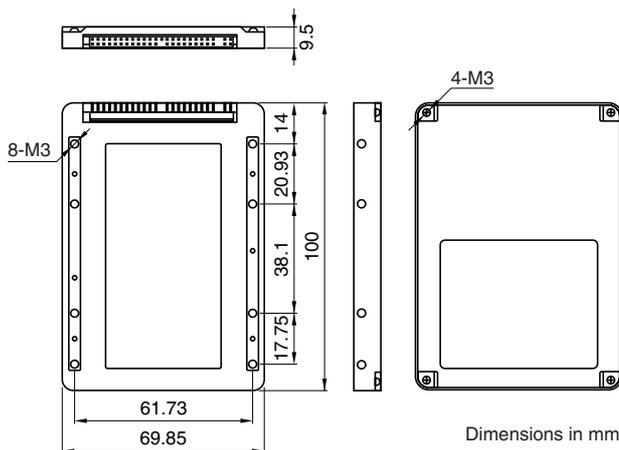
SPECIFICATIONS

Product name	CF Card RA8 Series	SSD (GBDisk) RA8 Series
Model No.	CFG8B Series	SDG8B Series
Data capacity	128MB/256MB/512MB/1GB/2GB/4GB/8GB/16GB	1GB/2GB/4GB/8GB/16GB
Shape	CompactFlash® Type I	2.5-inch
Host IF	Ultra ATA 133	Ultra ATA 133
Transfer mode	Ultra DMA mode 0-6 Multiword DMA mode 0-4 PIO mode 0-6	Ultra DMA mode 0-6 Multiword DMA mode 0-4 PIO mode 0-6
Read(max.)	45MB/s[1]	45MB/s[1]
Write(max.)	28MB/s[1]	28MB/s[1]
Power supply voltage	3.3V±5%/5.0V±10%	5V±10%
Consumption current	145mA max.[3.3V Read/Write][2], 5mA[Stand-by]	130mA max.[Read/Write][2], 10mA[Stand-by]
Operating temperature	0 to +70°C[−40 to +85°C Industrial Option]	0 to +70°C[−40 to +85°C Industrial Option]
Ambient storage temperature	−25 to +85°C[−45 to +90°C Industrial Option]	−25 to +85°C[−45 to +90°C Industrial Option]
Acquired standards	CE/FCC/VCCI	CE/FCC/VCCI
Environmental specifications	RoHS compliant	RoHS compliant
Country of origin	Taiwan	Taiwan

[1] In the 2Para Interleaved mode
[2] In the 2Para mode

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PRODUCT IDENTIFICATION

SD G 8B 16G F A B C S (E) (A) (Z) - S S A (∗)
(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)   (13) (14) (15) (16)

(1) Type

CF	CF card
SD	SSD

(2) Division code

G	H6 ESS BU

(3) Controller

8B	TDK GBDriver RA8b(CF, PATA SSD)
2A	TDK GBDriver RS2a(SATA SSD)

(4) Capacity

12M	128MB
25M	256MB
51M	512MB
01G	1GB
02G	2GB
04G	4GB
08G	8GB
16G	16GB
32G	32GB
64G	64GB

(5) Flash type

T	2KB/Page SLC
F	4KB/Page SLC
U	2KB/Page MLC
G	4KB/Page MLC

(6) Flash connection

A	Single
B	2Para
C	2Para interleaved
D	4Para (SATA SSD only)
E	4Para interleaved (SATA SSD only)

(7) CIS information

A	Removable
B	Fixed disk
C	Custom

(8) Operating temperature range

C	Commercial(0 to 70°C)
W	Wide range(–40 to +85°C)

(9) SMART

S	SMART ON
None	SMART OFF

(10) DMA

None	DMA ON
E	DMA OFF(PIO)

(11) Security

None	Security ON
A	Security OFF

(12) Other option

None	Standard
Z	If any

(13) Label

A	CF standard
B	No label
C	Backside only
D	Backside only, capacity indication
Z	Customer specification
S	SSD Standard

(14) Packing

A	CF standard
S	SSD standard
Z	Customer specification

(15) Customer code 1

A	Standard
B to Z	Customer specification ID

(16) Customer code 2

A	Standard
B to Z	Customer specification ID (different specification for same customer)

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